

REMARKS

In this response, claims 1-8, 10 and 11 have been amended to more clearly define the invention, and claim 9 has been cancelled. The amendments are supported by the specification. No new matter is added by this response. After entry of this paper, claims 1-8, 10 and 11 remain pending in this application. Applicant respectfully traverses the rejections and request reconsideration in view of the amendments and following remarks.

Claim Rejections under 35 U.S.C. § 112

Claims 5, 8 and 10 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter.

The Office has expressed concerns regarding the phrases “bulky functional group” and “small interaction” in claim 5, and “thin membrane” in claims 8 and 10.

Applicant believes that the Office's concerns have been addressed in the amended claims, and requests that the rejections to claims 5, 8 and 10 under 35 U.S.C. § 112, second paragraph be withdrawn.

Claim Rejections under 35 U.S.C. § 102(b)

Claim 1 has been rejected under 35 U.S.C. § 102 (b) as being anticipated by Lahanas et al. (U.S. Patent No. 6,042,839).

Claim 1 has been amended to require “[a] proton conducting membrane which is formed by crosslinking a unit structure of a layered clay mineral, wherein a polyvalent metal ion, which does not naturally exist in said layered clay mineral, is incorporated

between layers of said layered clay mineral.” Lahanas et al. discloses a material in the form of powder containing cosmetic compositions. Lanahas et al. fails to teach or disclose a proton conducting membrane as required in claim 1. Thus, independent claim 1 is allowable over the cited prior art.

Claim Rejections under 35 U.S.C. § 102(e)

Claims 1 and 9 have been rejected under 35 U.S.C. § 102 (e) as being anticipated by Kerres et al. (U.S. Patent No. 7,049,020).

Claim 1 has been amended to require “[a] proton conducting membrane which is formed by crosslinking a unit structure of a layered clay mineral, wherein a polyvalent metal ion, which does not naturally exist in said layered clay mineral, is incorporated between layers of said layered clay mineral.” Kerres et al. discloses a composite consisting of an ionomer and an inorganic optionally functionalized phyllosilicate. In Kerres et al., “the single layers are linked to one another by the cations positioned between them, which are usually Na, K, Mg, Al, or/and Ca, in the naturally occurring phyllosilicates.” (Col. 6, ll. 56-62.) On the contrary, claim 1 of the present application requires that “a polyvalent metal ion, which does not naturally exist in said layered clay mineral, is incorporated between layers of said layered clay mineral.” Thus, independent claim 1 is allowable over the cited prior art.

Claim 9 has been cancelled, and thus the rejection to claim 9 is moot now.

Claim Rejections under 35 U.S.C. § 102(b)

Claims 1 and 9 have been rejected under 35 U.S.C. § 102 (b) as being anticipated by Haring et al. (DE 199 19 881 A1), which is the German equivalent of the Kerres et al. reference, which has been addressed above.

As discussed above, claim 1 is allowable over Kerres et al; and thus, claim 1 is patentable over Haring et al. for at least the same reasons as set forth above.

Claim 9 has been cancelled, and thus the rejection to claim 9 is moot now.

Claim Rejections under 35 U.S.C. § 103

Claim 11 has been rejected under 35 U.S.C. § 103 (a) as being unpatentable over either Kerres et al. or Haring et al., or both.

As discussed above, independent claim 1 is allowable over the cited prior art. Claim 11 is dependent from claim 1; and thus, claim 11 is patentable for at least the same reasons as set forth above in connection with independent claim 1.

Allowable Subject Matter

Applicant acknowledges with appreciation that the Examiner indicated that claims 2-4, 6 and 7 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, claim 5 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims, and claims 8 and 10 would be allowable if rewritten to overcome the rejection under 35 U.S.C. §112, second paragraph.

Claim 5 has been amended to overcome the rejection under 35 U.S.C. §112, second paragraph. As discussed above, claim 1 is allowable over the cited prior art. Claims 2-7 ultimately depend from claim 1. These dependent claims add additional features to claim 1 that render these claims further patentable over the cited prior art.

Claims 8 and 10 have been amended to overcome the rejection under 35 U.S.C. §112, second paragraph, and therefore are allowable.

Conclusion


In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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